UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,574	11/14/2003	Jeffrey M. Isner	47624-DVC (71417)	1777

7590 02/22/2007

Edwards & Angell, LLP
Intellectual Property Practice Group
P.O. Box 55874
Boston, MA 02205

EXAMINER	
NGUYEN, QUANG	
ART UNIT	PAPER NUMBER
1633	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/714,574	ISNER ET AL.	
	Examiner	Art Unit	
	Quang Nguyen, Ph.D.	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *49-61,63-66 and 68-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49-61,63-66 and 68-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/26/06 has been entered.

Amended claims 49-61, 63-66 and new claims 68-72 are pending in the present application, and they are examined on the merits herein.

Priority

The present application is a continuation of U.S. Serial No. 09/698,323, filed on 10/27/2000, which is a divisional of U.S. Serial No. 09/265,041, filed on 3/9/1999, which claims benefit of the provisional application 60/077,262, filed on 3/9/1998.

Upon review of the specifications of the U.S. Serial No. 09/698,323, U.S. Serial No. 09/265,041, and the provisional application 60/077,262 and comparison with the specification of the present application, it is determined claims 49-61, 63-66 and 71 are only entitled **at best to the effective filing date of 3/9/1999** because the provisional application 60/077,262 does not have a written support for the administration of a stem cell factor (SCF) into any mammal or a concept for a co-administering any colony stimulating factor (CSF) other than a GM-CSF with an effective amount of a solution comprising a nucleic acid encoding at least one angiogenic protein or an effective

fragment thereof. However, **claims 68-70 and 72 are entitled to the effective filing date of 3/9/1998**.

Response to Argument

Applicant's arguments related to the assigned priority date in the Amendment filed on 12/26/06 (pages 6-7) have been fully considered, but they are respectfully not found persuasive.

Applicant argues basically that the Office's objection to the priority claim with respect to claims 49-61 and 63-66 should be withdrawn because amended claims 49 and 58 no longer recite stem cell factor, and Applicants' provisional application fully supports these amended claims.

Please note that Applicant has not pointed out which page number and which line number in the provisional application that has the written support for the concept of administering any CSF factor other than GM-CSF, or stem cell factor (SCF) for new claim 71, that induces endothelial cell progenitor cell (EPC) mobilization and enhances neovascularization in ischemic tissue.

With respect to claims 68-70 and 72, Applicants' arguments are moot in light of the reassigned priority date.

Claim Objections

Claim 58 is objected to because of the phrase "to increase EPC bone marrow derived EPC" that has the term "EPC" being recited twice. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 72 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

An embodiment of claim 72 is dependent on cancelled claim 67. Therefore, it is unclear exactly what Applicants intend to claim. Additionally, claim 72 recites the limitation "the angiogenic protein or factor" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. Which angiogenic factor do Applicants refer to? This is because in claim 68 from which claim 72 is dependent on, there is no recitation of any angiogenic factor. Clarification is requested because the metes and bounds of the claim are not clearly determined.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Amended claims 49-61, 63-66 and 68-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isner (WO 97/14307) in view of Hammond et al. (US Patent 5,880,090; IDS) for the same reasons already set forth in the Office Action mailed on 5/4/05 (pages 5-8). ***The same rejection is restated below.***

Isner teaches a method for enhancing blood vessel formation or angiogenesis in an ischemic tissue in a mammal having cerebrovascular ischemia, renal ischemia, pulmonary ischemia, limb ischemia, ischemic cardiomyopathy and myocardial ischemia (page 4, lines 5-23). The method comprises the step of injecting said tissue with an effective amount of a nucleic acid capable of expressing an angiogenic protein by any injection means, and the nucleic acid may be carried by vehicles such as cationic liposomes, adenoviral vectors and that nucleic acid encoding different angiogenic proteins may be used separately or simultaneously (page 4, line 25 continues to line 8 of page 5). Angiogenic protein includes aFGF, bFGF, VEGF (including VEGF165, see

page 15, line 19), EGF, PDGF, PD-ECGF, HGF, colony stimulating factor (CSF), macrophage-CSF (M-CSF), granulocyte/macrophage CSF (GM-CSF) and nitric oxidesynthase or muteins or portions thereof (page 5, lines 10-22). Isner also teaches that the nucleic acid encoding an angiogenic protein is inserted into a cassette where it is operably linked to a promoter that is capable of driving expression of the protein in cells of the desired target tissue (page 9, line 28 continues to line 20 of page 10). **Isner further teaches that an angiogenic factor can be combined with other genes or their encoded gene products to enhance the activity of targeted cells, while simultaneously inducing angiogenesis, including, for example, nitric oxide synthase, L-arginine, fibronectin, urokinase, plasminogen activator and heparin (page 11, lines 15-19)**. Isner also discloses that catheters have been used for gene delivered in the art (page 1, line 23 continues to line 30 of page 2).

Isner does not specifically teach the administration of an effective amount of a stem cell factor (SCF), a colony stimulating factor (CSF) or an effective fragment thereof into the mammal with an effective amount of a solution comprising a nucleic acid encoding at least one angiogenic protein or an effective fragment thereof, even though Isner teaches that an angiogenic factor can be combined with other genes or their encoded gene products to enhance the activity of targeted cells.

At the effective filing date of the present application Hammond et al already taught that cytokines such as stem cell factor (SCF), granulocyte-macrophage colony-stimulating factor (GM-CSF), granulocyte colony-stimulating factor (G-CSF) are capable of mobilizing bone-marrow derived endothelial cell progenitors or non-adherent CD34+

cells in the blood for increasing endothelialization in a treated patient (see at least Summary of the invention). Hammond et al further note that CD34+ circulating cells in the blood can participate in the repair of ischemic tissue (col. 3, lines 28-37).

Accordingly, it would have been obvious for an ordinary skilled artisan to modify the method of Isner by further administering to the treated mammal an effective amount of at least one of SCF or CSF or an effective fragment thereof in light of the teachings of Hammond et al, and since Isner also teaches that an angiogenic factor can be combined with other genes or their encoded gene products to enhance the activity of targeted cells, including nitric oxide synthase which is also an angiogenic protein or factor (page 11, lines 15-19; and page 7, lines 16-24).

An ordinary skilled artisan would have been motivated to carry out the above modification because Hammond et al. already demonstrated that cytokines such as stem cell factor (SCF), granulocyte-macrophage colony-stimulating factor (GM-CSF), granulocyte colony-stimulating factor (G-CSF) are capable of mobilizing bone-marrow derived endothelial cell progenitors or non-adherent CD34+ cells in the blood for increasing endothelialization in a treated patient; and this mobilization of endothelial cell progenitors would further enhancing blood vessel formation or angiogenesis in an ischemic tissue in a mammal having a myocardial ischemia, and thus further optimizing the therapeutic outcome. The modified method is indistinguishable from the presently claimed method.

An ordinary skilled artisan would have a reasonable expectation of success in light of the teachings of Isner and Hammond et al., coupled with a high level of skill for an ordinary skilled artisan in the relevant art.

Therefore, the claimed invention as a whole was *prima facie* obvious in the absence of evidence to the contrary.

Response to Arguments

Applicants' arguments with respect the above rejections in the Amendment filed on 12/26/06 (pages 7-16 and 18-20) have been fully considered but they are respectfully not found persuasive.

The examiner notes that Applicants presented a lot of similar arguments as those already presented in the Amendment after final dated 6/26/06 (pages 8-12), and these arguments have been addressed in details by the Examiner in the Advisor action mailed on 7/10/06 as well as in the Final Office Action mailed on 1/25/06 (pages 6-8). Only new arguments will be addressed below.

1. With respect to the issue of teaching away by the Hammond et al reference due to the undesirable effects, Applicants further argue that Hammond merely states that two dogs that received synthetic grafts had 80% and 35% of their grafts surfaces covered with endothelial cells (example 3), and that this fails to indicate whether or not the grafts were evaluated for the presence of microcalcification. Additionally, example 4 also fails to provide any description of results.

Since examples 3-4 did not mention anything about the presence of microcalcification, this means that microcalcification is not a problem. Nevertheless, the examples clearly demonstrated that exemplified G-CSF and other agents (such as SCF, GM-CSF, see allowed claims) are capable of mobilizing bone marrow derived endothelial progenitors to promote the healing of vascular grafts *in vivo*. Furthermore, the circulating CD34+ or Flk-1+ cells can participate in the repair of ischemic tissue as proposed by Asahara et al. as evidenced at least by the results reported in the article of Science 275:965-967, 1997 (This reference is specifically cited by Hammond et al.). The results showed that the EC progenitors can be incorporated into sites of active angiogenesis in animal models of ischemia.

Once again, Isner teaches clearly that an angiogenic factor can be combined with other genes or their encoded gene products to enhance the activity of targeted cells in a method for enhancing blood vessel formation or an angiogenesis in an ischemic tissue, including ischemic cardiomyopathy or myocardial ischemia, in a mammal. Hammond et al. teaches clearly that SCF, GM-CSF, G-CSF are capable of mobilizing bone-marrow derived endothelial cell progenitors or non-adherent CD34+ cells in the blood for enhancing the endothelialization of synthetic vascular grafts in a patient. Hammond also notes that CD34+ circulating cells in blood can participate in the repair of ischemic tissue (col. 3, lines 28-37). As already pointed out in the above rejection, an ordinary skilled artisan would have been motivated to modify the method of Isner by further administering to the treated mammal with an effective amount of at least one of SCF, GM-CSF and G-CSF, or an effective fragment thereof because Hammond

already demonstrated that the aforementioned cytokines are capable of mobilizing bone-marrow derived endothelial cell progenitors in the blood, and that this mobilization of endothelial cell progenitors would further enhance blood vessel formation or angiogenesis in an ischemic tissue in a mammal having a myocardial ischemia, and thus further optimizing the angiogenic therapeutic outcome.

2. With respect to the issue of unexpected result, Applicants pointed the Examiner to page 5, lines 24-27 of the specification that state "In particular, we have found that GM-CSF and other hematopoietic factors increase EPC mobilization and enhances neovascularization. This observation was surprising and unexpected in light of prior reports addressing GM-CSF activity in vitro and in vivo"; and page 8, lines 15-18 that state "In many settings, it is believed that co-administration of the vascularization modulating agent and the angiogenic protein can positively impact neovascularization in the mammal, e.g., by providing additive or synergistic effects". As further evidence that the combination is surprisingly more potent than expected, Applicants provide the article of Kawamoto et al. (Circulation 110:1398-1405, 2004) describing in chronic myocardial ischemia, combination of VEGF-2 gene transfer with either GM-CSF or SCF resulted in superior improvement in all indexes of perfusion and function compared with all other treatment groups (page 1398). Applicants also argue that none of the prior art references teaches or suggests that combination therapy would be surprisingly effective for the treatment of myocardial ischemia and that evidence of unexpected superior results to the prior art is indicative of non-obviousness.

It is noted that the combo therapy resulted in superior improvement compared with other treatment groups that include a control group, a group treated **only with** VEGF-2 transfer and a group treated **only with** a single cytokine (see page 1398 of the Kawamoto et al article). There is no surprising or unexpected results obtained by the combo group as argued by Applicants or cited paragraphs in the instant specification because the obtained results are actually expected. This is because the angiogenic effects contributed by the administration of an effective amount of a nucleic acid encoding at least one angiogenic protein or an effective fragment thereof **are complemented or enhanced** by the effects contributed by the administration of an effective amount of at least one angiogenic factor such as GM-CSF, G-CSF and SCF or an effective fragment thereof due to their ability to mobilize bone-marrow derived endothelial progenitors that can participate in the repair of ischemic tissues based on the teachings of Hammond et al. and/or Asahara et al. as discussed above. Moreover, please also note that GM-CSF, G-CSF and VEGF are also angiogenic proteins in addition to their ability to mobilize bone-marrow derived endothelial progenitor cells.

Accordingly, amended claims 49-61, 63-66 and 68-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isner (WO 97/14307) in view of Hammond et al. (US Patent 5,880,090; IDS) for the same reasons already set forth in the Office Action mailed on 5/4/05 (pages 5-8)

Amended claims 49-61, 63-66, 68-70 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isner (WO 97/14307) in view of Bussolino et al. (J. Clin.

Invest. 87:986-995, 1991; IDS) for essentially the same reasons already set forth in the Office Action mailed on 5/4/05 (pages 5-8). ***The same rejection with minor modifications is stated below.***

The teachings of Isner have been presented above. However, Isner does not specifically teach the administration of an effective amount of a colony stimulating factor (CSF) or an effective fragment thereof into the mammal with an effective amount of a solution comprising a nucleic acid encoding at least one angiogenic protein or an effective fragment thereof, even though Isner teaches that an angiogenic factor can be combined with other genes or their encoded gene products to enhance the activity of targeted cells.

At the effective filing date of the present application Bussolino et al already demonstrated that human recombinant G-CSF and GM-CSF are capable of inducing endothelial cells to proliferate and migrate *in vitro*, as well as repair of mechanically wounded endothelial monolayers, with an exemplification showing that recombinant G-CSF has also angiogenic activity *in vivo*. Additionally, recombinant G-CSF exhibits synergistic effects with bFGF in inducing *in vivo* angiogenesis (see abstract and Methods).

Accordingly, it would have been obvious for an ordinary skilled artisan to modify the method of Isner by utilizing recombinant G-CSF and/or GM-CSF as an endothelial cell mitogen to be administered to a patient in need thereof in light of the teachings of Bussolino et al, and since Isner also teaches that **an angiogenic factor can be combined with other genes or their encoded gene products to enhance the**

activity of targeted cells, including nitric oxide synthase which is also an angiogenic protein or factor (page 11, lines 15-19; and page 7, lines 16-24).

An ordinary skilled artisan would have been motivated to carry out the above modification because Bussolino et al. already demonstrated by exemplification that at least recombinant G-CSF has angiogenic activity *in vivo*, and that it also exhibits synergistic effects with at least another endothelial cell mitogen bFGF in inducing *in vivo* angiogenesis. This would in effect optimize the desired therapeutic outcome. The synergistic effects in the induction of angiogenesis would also be reasonably expected for the interaction between the administered G-CSF or GM-CSF and encoded bFGF or its fragment being expressed from a delivered nucleic acid. The modified method is indistinguishable from the presently claimed method.

An ordinary skilled artisan would have a reasonable expectation of success in light of the teachings of Isner and Bussolino et al., coupled with a high level of skill for an ordinary skilled artisan in the relevant art.

Therefore, the claimed invention as a whole was *prima facie* obvious in the absence of evidence to the contrary.

Response to Argument

Applicants' arguments with respect the above rejections in the Amendment filed on 12/26/06 (pages 16-20) have been fully considered but they are respectfully not found persuasive.

The examiner notes that Applicants presented the same arguments as those already presented in the Amendment after final dated 6/26/06 (pages 12-14), and these arguments have been addressed in details by the Examiner in the Advisor action mailed on 7/10/06 as well as in the Final Office Action mailed on 1/25/06 (pages 10-11).

As already stated in the Advisory action, the results of Bussolino et al. indicated clearly that human recombinant G-CSF and GM-CSF are capable of inducing endothelial cells to proliferate and migrate *in vitro*, as well as repair of mechanically wounded endothelial monolayers, with an exemplification showing that recombinant G-CSF has also angiogenic activity *in vivo*. Additionally, recombinant G-CSF exhibits synergistic effects with bFGF in inducing *in vivo* angiogenesis (see abstract and Methods). Although angiogenic activity of G-CSF is weak relative to bFGF; the combination of bFGF and G-CSF resulted in an angiogenic response *in vivo* that might be a co-operative interaction or a synergistic effect of these two cytokines. Regardless of the nature of the interaction, an unexpected angiogenic response was obtained by combining non-angiogenic doses of bFGF and G-CSF *in vivo*. Therefore, the further administration of these cytokines would also result in an enhanced angiogenesis in the ischemic tissue, at least through an additive effect or other effects including the synergistic effects of bFGF and G-CSF suggested by Bussolino. Isner already taught the delivery of a nucleic acid encoding an angiogenic protein such as bFGF, GM-CSF, CSF or M-CSF to enhance blood vessel formation or angiogenesis in an ischemic tissue in a mammal, then why is it unpredictable that the further administration of at least G-CSF, GM-CSF, bFGF would not result in the formation of a new blood vessel,

particularly in light of the teachings of Isner and Bussolino et al.? Once again, it appears that Applicants ignored completely the teachings of Isner.

With respect to evidence of unexpected result, it is noted that the combo therapy resulted in superior improvement compared with other treatment groups that include a control group, a group treated **only with** VEGF-2 transfer and a group treated **only with** a single cytokine (see page 1398 of the Kawamoto et al article). There is no surprising or unexpected results obtained by the combo group as argued by Applicants or cited paragraphs in the instant specification because the obtained results are actually expected. This is because the angiogenic effects contributed by the administration of an effective amount of a nucleic acid encoding at least one angiogenic protein or an effective fragment thereof **are complemented or enhanced** by the effects contributed by the administration of an effective amount of at least one angiogenic factor such as GM-CSF, G-CSF or an effective fragment thereof due to their angiogenic activities alone, and not counting their synergistic or the co-operative interaction with bFGF as clearly demonstrated by Bussolino et al. by exemplification for G-CSF *in vivo*.

Accordingly, amended claims 49-61, 63-66, 68-70 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isner (WO 97/14307) in view of Bussolino et al. (J. Clin. Invest. 87:986-995, 1991; IDS) for the reasons set forth above.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Amended claims 49, 69 and 71 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 50-51 and 57-59 of copending Application No. 10/696,391. ***This is a new ground of rejection.***

Although the conflicting claims are not identical, they are not patentably distinct from each other because a method for inducing new blood vessel growth in myocardial tissue of a mammal in need of such treatment having the recited steps, wherein the angiogenic factor is a VEGF or SCF or CSF or a fragment thereof in the copending Application No. 10/696,391 anticipates the claimed genus of a method for treating ischemic myocardial tissue of a mammal in need of such treatment in the application being examined and, therefore, a patent to the genus would, necessarily, extend the rights of the species or sub- should the genus issue as a patent after the species of sub-genus.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Amended claims 49-61, 63-66 and 68-72 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 49, 52, 54-56, 60-65 and 68 of copending Application No. 10/696,391. ***This is a modified rejection.***

Although the conflicting claims are not identical, they are not patentably distinct from each other. The instant claims are directed to a method for treating ischemic myocardial tissue of a mammal in need of such treatment comprising: a) identifying a mammal which has, is suspected of having, or will have the ischemic tissue; b) injecting an effective amount of a solution comprising a nucleic acid encoding at least one angiogenic protein or an effective fragment thereof into the myocardial tissue; and c) administering to the mammal an effective amount of a colony stimulating factor (CSF) or GM-CSF (claims 68 and 70) or SCF (claim 71) or an effective fragment thereof, thereby inducing the new blood vessel growth in the myocardial tissue of the mammal; whereas claims 49, 52, 54-56, 60-65 and 68 of copending Application No. 10/696,391 are drawn to a method for inducing new blood vessel growth in myocardial tissue of a mammal in need of such treatment comprising: a) injecting an effective amount of a solution comprising a nucleic acid encoding at least one angiogenic protein or an effective fragment thereof into the myocardial tissue; b) administering to the mammal an effective amount of at least one angiogenic factor or an effective fragment thereof, thereby inducing the new blood vessel growth in the myocardial tissue of the mammal, and increasing the frequency of endothelial progenitor cells in the mammal, and (c)

monitoring a cardiac function by the recited means, and wherein the method improves said cardiac function.

The claims of the present application differ from the claims of the copending Application No. 10/696,391 in reciting administering specifically to the mammal an effective amount of a colony stimulating factor (CSF), a GM-CSF or a stem cell factor (SCF), or an effective fragment thereof. The claims of the present application can not be considered to be patentably distinct over claims 49, 52, 54-56, 60-65 and 68 of copending Application No. 10/696,391 when there is a specific disclosed embodiment of the co-pending application that teaches that SCF, CSF including GM-CSF or their fragments are the angiogenic factors. Accordingly, the claims of the copending Application No. 10/696,391 fall within the scope of claims 49-61, 63-66, 68 and 70-72 of the present application.

This is because it would have been obvious to an ordinary skilled artisan to modify the method for inducing new blood vessel growth in myocardial tissue of a mammal in need of such treatment in the co-pending application by also utilizing SCF and/or CSF, including GM-CSF or fragments thereof as angiogenic factors that support the instant claims. An ordinary skilled artisan would have been motivated to do this because these embodiments are explicitly disclosed in the co-pending application are preferred embodiments.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

It is noted that the above provisional double patenting rejections are not the only remaining rejections in the instant application.

Conclusions

No claims are allowed.

Should Applicants desire a telephonic interview, please contact the undersigned examiner by telephone to schedule an interview.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang Nguyen, Ph.D., whose telephone number is (571) 272-0776.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's SPE, Joseph T. Woitach, Ph.D., may be reached at (571) 272-0739.

To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1633; Central Fax No. (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

QUANG NGUYEN, PH.D.
PRIMARY EXAMINER